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SUPPLEMENTARY NOTES AND DESCRIPTIONS OF NORTH AMERICAN OSTOMIDÆ, CLERIDÆ, AND COSSONUS (COL.).

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The following notes and descriptions are in the nature of an appendix to two previous articles, one on certain Ostomidæ* and the other on the genus *Cossonus*.† They are the result of additional material and data combined with a renewed study of certain of the forms. The chief source from which I received this material was the U. S. National Museum, through the kindness of Dr. E. A. Schwarz and Mr. H. S. Barber. Dr. Schwarz also furnished me certain notes upon some of the early descriptions which I was not able to see, as well as some notes based upon his own studies.

Nemosoma punctatum n. sp. Form narrow, elongated, cylindrical, moderately shining, black with basal one third of elytra and antennæ rufous, the basal spot not extending quite to elytral margins. Antennæ extending backwards to thorax, first joint moderate in size, joints 2-8 small and short, gradually increasing in size outwardly and together subequal in length to club; club robust and over twice as wide as eighth joint. Head elongate, about one and a half times as long as wide, with sides posterior to eyes parallel or just perceptibly arcuate, head broadest across eyes where of about equal width to elytra; eyes moderate in size and prominence and placed about at middle of head; epistoma deeply triangularly

* "Some New Beetles in the Families Ostomidæ (Trogositidæ) and Cleridæ from California," by Edwin C. Van Dyke, BULL. BROOKLYN ENT. Soc., Vol. X, No. 2, pp. 25-33.

† "The Species of *Cossonus* Clairv. (Coleoptera) of America North of Mexico," by Edwin C. Van Dyke, BULL. BROOKLYN ENT. Soc., Vol. X, No. 1, pp. 1-23.

emarginate and impressed, front with a longitudinal impressed line; surface rather coarsely and regularly punctured, the punctures at least their own width apart. Prothorax subequal in length to head, narrower posteriorly than elytra, gradually divergent forwards two thirds of way to head, thence parallel, at apex as broad as base of head and but slightly less than width of elytra, disc evenly convex, punctured similarly to head, side margin fine. Elytra about two and a half times as long as wide and somewhat longer than head and thorax together, punctured similarly to head and thorax, without tendency to serial arrangement, disc without trace of striæ, a short rather deep linear impression without suture on apical depression. Head and prothorax beneath coarsely and sparsely punctured, gula transversely wrinkled, metasternum and abdomen sparsely and finely punctured.

Length 4.5 mm., breadth 1 mm.

Type: A female in my own collection.

The description is based upon a single specimen collected at Ashland, Oregon, May 5, 1915, by Mr. G. H. Champion and kindly presented by him. One other specimen which is undoubtedly the same species has been seen and compared. This latter was collected on cedar, *Libocedrus decurrens* Torr., in the burrows of a species of *Phlaosinus*, on the Klamath river near Hamburg, Siskiyou County, California, March 15, 1916, by Mr. Ralph Hopping. It is of the same size, shape and color as the type, but differs in a few minor ways, such as having the two projecting portions of the epistoma more prolonged and slightly everted at the apex and in having the punctuation of the thorax somewhat finer and that of the elytra much finer, especially toward the apex. The epistomal character is no doubt sexual, this specimen being a male.

This species in size and general shape simulates *N. fissiceps* Fall, but it differs from that not only in having a black prothorax but in being definitely and generally punctured. It simulates *N. attenuatum* Van Dyke in regard to color, but differs in being much more robust and in being decidedly punctured. It should appear in my table between *fissiceps* Fall and *attenuatum* Van Dyke.

Grynocharis expansa n. sp. Form elliptical, depressed, moderately shining, rufous, with sparse clothing of short, depressed, yellow hair. Antennæ reaching backwards about to middle of thorax, first joint moderate in size, bulbous, and with outer anterior part angular, second smaller and

almost globular, third still smaller, but longer than broad, the fourth as broad as long, the remainder broader than long, joints three to eight gradually increasing in breadth, the ninth, tenth and eleventh suddenly enlarged and forming a loosely jointed club. Head broader than long, one half breadth of thorax, coarsely variolately punctured, front flattened, eyes moderate in size but distinctly smaller than in *G. pilosula* Cr. Thorax twice as wide as long, disc moderately convex and finely sparsely punctured, sides depressed, widely explanate, the expanded portions together over one third the breadth of thorax and with punctuation coarse and closer than on disc, basal margin with median half slightly lobed, the outer parts just perceptibly rounded, hind angles well rounded, side margin evenly and gradually arcuate, finely serrulate, and somewhat convergent to anterior angles which are well rounded, anterior margin deeply and semicircularly emarginate. Elytra with breadth two thirds of length, about three times as long as thorax, breadth at base the same as breadth of thorax, thence gradually increasing to posterior two thirds, disc quite flat, sides suddenly depressed below disc and explanate, the expanded margin almost as wide as in the thorax, surface moderately coarsely and sparsely punctured, each puncture with a short, yellow procumbent hair arising from it, side margins very finely serrulate, apical angles slightly and individually rounded. Beneath very finely and sparsely punctured and finely and sparsely pubescent.

Length 5 mm., breadth 2.25 mm.

Type: A unique in my own collection.

My specimen I owe to the kindness of Mr. J. C. Bridwell, who collected it on Mt. San Jacinto in Southern California, in July, 1912. Two other specimens have been seen, a male and female, a pair in the collection of Mr. Ralph Hopping. They were collected from beneath the bark of cedar, *Libocedrus decurrens* Torr. at Cascada, Sierra National Forest, Fresno County, California, June 1, 1915. Both have the head and abdomen somewhat piceous, darker than in type, and the female has the punctuation of elytra somewhat coarser than in the male and than in my specimen, which is also a male, otherwise they are the same. The male is 5 mm. in length and the female 6 mm. It is interesting to note that this pair were taken from beneath dead bark where both *G. quadrilineata* Melsh, and *G. oregonensis* Cr. are to be found, while *G. pilosula* Cr., though very common, has always been taken in flowers, chiefly those of *Ceanothus*, the so-called wild lilac.

This species in size and general appearance is like *G. pilosula*

Cr. and might at first be taken for a badly rubbed specimen of the same. It, however, differs markedly as regards a number of features, such as in its greater flatness, having only one half the dorso-ventral diameter of the other; its much more greatly developed thoracic and elytral margins, the elytral margin in this species being wide as in the thorax, while in the common species, it is quite narrow; in having the anterior margin of the thorax rather deeply emarginate in contrast to the straight margin of the other; in being much less densely and coarsely punctured, especially as regards the elytra, the punctuation in *G. pilosula* Cr. being very coarse and dense; in having a very fine, sparse, and hardly perceptible pubescence as against a rather dense and conspicuous one; and in having differences in antennal structure such as broader and shorter intermediate joints in contrast to the narrower and more elongate ones in the other species.

Galeruclerus trilobatus Van Dyke. Certain intermediate phases of the above, which have recently been seen, have convinced me that this is no more than a variety of *G. fasciata* Lec., so it must accordingly be reduced to its proper status.

The new species of *Cossonus* described in the following pages will make necessary certain changes in my table for the separation of the species. These will be as follows: Just in front of *subareatus* Boh. and including it, change the table to read:

Basal portion of rostrum longer than dilated portion.

Neck of rostrum decidedly longer than apex, dilated portion as long as broad *subareatus* Boh.

Neck of rostrum barely longer than apex, dilated portion transverse.

pacificus n. sp.

After *texanus* n. sp. add

Head with prominent eyes, projecting beyond border, rostrum convex and depressed apically, a fovea on both vertex and rostrum. . . . *schwarzi* n. sp.

and after *concinnum* Boh. add the following sentences, the first of which should be of equal standing with that following *concinnum*:

Rostrum with apical portion just perceptibly wider than basal. Thorax narrower than elytra.

Rostrum elongate, thorax and elytra very coarsely and densely cribrately punctate *hubbardi* Schwarz.

Rostrum short, thorax with deep triangular depression in median portion, the discal boundaries almost smooth *fossicollis* n. sp.

Cossonus pacificus n. sp. Black, shining. Head quite smooth except for a few fine and sparsely placed punctures, rostrum moderately coarsely and closely punctured at sides and rather finely and sparsely above. Eyes moderate and but very slightly protruding beyond sides of head, diameter of head across eyes slightly greater than dilated portion of rostrum. Sides of head gradually convergent forwards, slightly constricted in front of eyes to rostrum, a small fovea at middle of vertex. Rostrum as long as one half of the thorax and but slightly arcuate, basal portion barely longer than apical, narrowest a short distance in front of eyes, then gradually increasing in width to apical portion which is one third broader than narrowest portion, quadrangularly dilated and slightly broader than long. Joints of funicle of antennæ very slightly increasing in width outwards, the outermost joint about one half the width of the club.

Prothorax slightly longer than broad, base bisinuate, sides from slightly constricted base, gradually arcuate to anterior third, then more suddenly rounded to slightly constricted apex, surface flattened, unequally punctured, the punctures along sides of median smooth line, coarse and sparsely placed, very fine and sparse on outer part of disc and moderately coarse and more closely placed at sides. At the base the longitudinal line becomes somewhat cristate.

Elytra distinctly wider than thorax, with disc somewhat flattened, striate, striæ rather coarsely, evenly, and serrately punctured, intervals convex, particularly posteriorly, very minutely uniseriately punctured.

Body beneath moderately coarsely and closely punctured anteriorly and more finely and sparsely punctured posteriorly.

Length 7 mm., width 1.75 mm.

Type: In my own collection; paratypes in U. S. Nat. Mus. and Cal. Acad. of Sciences, all from Tallac, Lake Tahoe, Cal., June, 1899, and taken by myself from beneath bark of dead aspen, *Populus tremuloides* Michx.

This species is the one which I considered, in my previous paper, as the western phase of *C. subareatus* Boh. and which I now, after a more thorough and renewed examination, feel must be considered as distinct. All my previous notes referring to western localities for *C. subareatus* Boh. must therefore be considered as applicable to this species. A giant form from Fieldbrook, California, collected by H. S. Barber, and now in the Nat. Mus. Coll., I must at present consider as nothing but a very large female of this species. This species differs from the true *C. subareatus* Boh. in being generally broader and flatter, the other being quite cylindrical; in having the elytra much more coarsely punctured and with more convex intervals; the under-

surface also more coarsely punctured; and in having the basal portion of the rostrum barely longer than the apical and less parallel and with the apical dilatation somewhat transverse, whereas the basal portion in the other is decidedly longer than the apical, almost parallel near the eyes, and the apical portion not broader than long.

C. schwarzi n. sp. Black, shining. Head finely and sparsely punctured posteriorly, rather coarsely and closely between eyes and on rostrum. Sides of head posterior to eyes slightly arcuate, eyes prominent and projecting convexly well beyond sides of head, causing head to become suddenly constricted to base of rostrum. Vertex with a moderately deep and elongate puncture, diameter of head across eyes slightly less than greatest breadth of rostrum. Rostrum about half the length of the thorax, rather suddenly depressed at apex, basal portion about equal in length to apical, about as broad as long and with straight and parallel sides, apical portion abruptly and quadrilaterally dilated, broader than long and at least one third broader than basal portion, a small elongate puncture at middle of dorsal surface and in line with the deeper one of the vertex. Joints of funicle of antennæ gradually increasing in width outwards, the outermost joint about a third wider than first and one half the width of club.

Prothorax slightly longer than broad, base bisinuate, sides from slightly constricted base, gradually arcuate and convergent until near apex where slightly constricted. Surface somewhat flattened above, with moderately coarse and well separated punctures, coarser and closer at sides, a median smooth line outlined by a margin of coarser punctures than usual, particularly at base.

Elytra distinctly wider than thorax, slightly convex but with disc slightly flattened, deeply striate, coarsely punctured, punctures somewhat deeper and coarser at base, intervals slightly convex, very minutely uniseriately punctured.

Body beneath, sparsely and finely punctured in sternal area of thorax, coarsely at sides, especially of prothorax, rather moderately and more evenly punctured over abdomen.

Length 5 mm., breadth 1.3 mm.

Type and two paratypes in U. S. Nat. Mus., paratype in my own collection, all from Williams, Arizona, and from the Saltau collection of the U. S. Nat. Mus.

This species, which I take great pleasure in naming after my good friend, Dr. E. A. Schwarz, would come in my table, closest to *texanus*. It differs from that chiefly in having the eyes more prominent, the rostrum convex on top and with a median puncture which is in line with a similar one on the vertex, and in

having the apical part of the rostrum more depressed. Superficially it suggests a small *piniphilus* but it lacks the cuneiform thorax and besides has a different type of head and rostrum. The presence of fovea on both vertex and rostrum and the apically depressed rostrum should prevent this species from being confused with any other in our fauna.

C. hubbardi Schwarz. Psyche, Supplement to, I, May, 1899. Black, but slightly shining. Head smooth back of eyes, coarsely punctured from hind margin of eyes forward to middle of basal portion of rostrum, thence smooth and sparsely finely punctured. Front with a deep oblong fovea extending to the anterior part of the vertex. Eyes moderate in size and barely protruding beyond the straight and oblique sides of head, diameter of head across eyes about one third greater than dilated portion of rostrum. Rostrum slightly longer than one half of thorax, arcuate, basal portion just perceptibly shorter than apical portion, cylindrical and with sides just divergent anteriorly, apical portion feebly dilated and quadrilateral. Antennæ inserted at outer fifth of beak, scape extending slightly beyond the hind margins of the eyes, first funicular joint about twice as long as wide; second point slightly longer than wide, obconical, joints 3-7 transverse, gradually but not strongly increasing in width, club large, over twice as broad as outermost joint of funicle, oblong-oval, opaque, pubescent, basal portion very little smoother than the apical portion.

Prothorax very little longer than broad, with sides straight and slightly diverging from base to three fourths of length, then evenly rounded to near apex where but slightly constricted, base bisinuate. Surface somewhat flattened, extremely coarsely, densely cribrato-punctate, the interstices broader and more shining on the disc than on the sides, a distinct depression anterior to the scutellum where a shining cribriform elevation may be seen, and on front of this a large equally shining rudiment of a smooth median line.

Elytra at base considerably wider than thorax, striate, the striæ extremely coarsely punctate, intervals narrow, subcostiform, sutural interstices with row of fine punctures and depressed behind the scutellum.

Body beneath very coarsely and densely punctate, the mesosternum and abdomen less densely than the prosternum. Front tibia not sinuate at inner edge.

Length 3.7-4.8 mm., breadth 1.5 mm.

This very distinct species which is related to none of our other species, was unfortunately overlooked when I reviewed the genus. I have therefore introduced it here in order to have all of our species listed together. The description given is based upon the

original but modified to conform with my others. A specimen very kindly loaned by Dr. Schwarz has enabled me to study it in detail.

As stated in the original account, this species was collected by the late H. G. Hubbard, at Tucson, Arizona, and taken from the dead tissues of a wounded giant cactus, *Cereus giganteus*. A specimen from Lower California, in the collection of Mr. H. C. Fall, has been referred by him to this species.

Cossonus fossicollis n. sp. Black, shining. Head practically impunctate posteriorly, very finely and sparsely punctate on dorsal surface of rostrum, more coarsely and closely at sides. Head, including eyes, cuneiform, and gradually convergent to rostrum, the eyes rather flat and just projecting beyond sides of head, an elliptical shaped fovea on vertex between eyes, the diameter of head across eyes a little less than one third greater than dilated portion of rostrum. Rostrum distinctly less than one half length of thorax, arcuate, basal portion about equal to apical, moderately broad and with parallel sides, apical portion just perceptibly wider than basal portion. Joints of funicle of antennæ transverse and but very gradually increasing in width outwards, the outermost joint distinctly less than one half width of club.

Prothorax distinctly longer than wide, base bisinuate, sides at middle two thirds almost parallel, gradually obliquely convergent posteriorly, gradually rounded anteriorly to constricted anterior portion, surface flattened above, with deep longitudinal triangular depression extending from its apex near the anterior margin to the base where it occupies over one third of total breadth; through the middle of this depression there runs a linear slightly elevated line that is bounded anteriorly by a single row of deep punctures and posteriorly by a confused series of similar punctures, the disc outside of the depression but very minutely and sparsely punctured and quite shining, the sides of thorax moderately coarsely and closely punctured.

Elytra distinctly wider than thorax, slightly convex above, deeply striate, coarsely punctured but with punctures well separated even anteriorly, where they are coarser and deeper, intervals slightly convex and with punctures practically imperceptible.

Body beneath coarsely and closely punctured on prothorax and sides of mesothorax and anterior segments of abdomen, and rather finely and sparsely on mesosternum and median and posterior part of abdomen.

Length 3.5 mm., breadth 1 mm.

Type: A unique from the Santa Rita Mountains of Arizona, collected May 25, from the Hubbard and Schwarz collection, and now in the U. S. Nat. Mus. by whom it was submitted for study and description.

This very distinct species, because of the peculiarities of its thorax, should be confused with no other species in our fauna. In my table, it should follow *C. hubbardi* Schwarz, the two in their turn to follow *C. concinnus* Boh. It is, however, not closely related to either.

C. bohemanni Horn. This should be placed as a synonym of *C. platalea* Say. As stated by Dr. E. A. Schwarz, Bohemann used the term "pone" for "near" and not "behind" as interpreted by Dr. Horn.

C. quadricollis Van Dyke. Two specimens from the Nat. Mus., collected at Republic, Oregon, by Mr. A. W. Barber, have been seen. This shows the northward distribution of the species, as was to be expected.

C. ellipticollis Van Dyke. Six specimens from Arizona, mostly Winslow, belonging to the Nat. Mus., have been seen.

C. concinnus Boh. This should be reduced to a variety of *C. impressifrons* Boh. A review of the literature has convinced me that there is no valid reason for retaining it apart.

C. crenatus Horn. Specimens of this species have been taken in abundance in various parts of California, from the so-called digger pine, *Pinus sabiniana* Dougl.

NOTES ON STRATEGUS MORMON.

BY WARREN KNAUS, McPherson, Kan.

The writer first took this rare Scarabæid June, 1913, on ground he had collected over at least once a season for almost a quarter of a century. The two specimens were male and female from burrows under horse droppings. The burrows are easily distinguishable, being about $1\frac{3}{4}$ inches in diameter, larger by a fourth than the similar holes of *Phanæus difformis* in the same situation. Usually a pile of freshly turned sand at horse droppings indicates a burrow, the larger *Strategus mormon*, the smaller the *Phanæus*; but occasionally there is no sand heap or covering around the larger. The hole either goes straight down or inclines not over fifteen degrees and varies from four to twelve inches in depth. My first two *Strategus* was taken on a perfectly bare sand dune, probably fifty yards apart.

In 1915 I secured eight specimens on the dunes under horse droppings a mile away from the locality of my first specimens. They were five males and three females, coming from late in